

What is claimed is:

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1. A method of etching a metallic film, comprising the steps of:

forming a metallic film on a thin film resistor;
forming a conductive film on the metallic film;
forming a first opening in the conductive film to expose the metallic film from the first opening;

forming a mask on the conductive film, the mask having a second opening having an opening area smaller than that of the first opening and open in the first opening to expose the metallic film therefrom; and

etching the metallic film through the second opening.

2. The method of claim 1, wherein the step of etching the metallic film includes steps of:

dry-etching a first part of the metallic film through the second opening; and

wet-etching a second part of the metallic film, the second part directly contacting the thin film resistor.

3. The method of claim 1, wherein a side wall of the first opening is entirely covered with the mask defining the second opening therein.

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4. The method of claim 1, wherein the step of forming the mask includes steps of:

forming a photo-resist on the conductive film and in

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the first opening to serve as the mask; and

removing a part of the photo-resist filling the first opening to form the second opening.

5. A method of etching a metallic film, comprising steps of:

forming a metallic film on a thin film resistor;

forming a conductive film on the metallic film with a first opening exposing the metallic film therefrom;

dry-etching a first part of the metallic film through the first opening; and

wet-etching a second part of the metallic film through the first opening to expose the thin film resistor from the first opening, the second part underlying the first part and directly contacting the thin film resistor.

6. The method of claim 5, further comprising a step of forming a photo-resist on the conductive film and on a side wall of the first opening to form a second opening smaller than the first opening and open within the first opening,

wherein the steps of dry-etching and wet-etching the metallic film are performed through the second opening.

7. The method of claim 5, wherein a thickness of the first part is equal to or larger than 20% relative to an entire thickness of the metallic film.

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film is patterned so that said ratio becomes less than 2.0.

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14. The method of claim 15, wherein:

the step of patterning the conductive film includes a step of disposing a resist having a specific shape on the conductive film, and a step of etching the conductive film through the resist; and

the metallic film is etched through the conductive film holding the resist thereon.

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15. The method of claim 12, wherein the metallic film is etched using an etching solution in which the metallic film has an ionization tendency larger than that of the thin film resistor and smaller than that of the conductive film.

16. The method of claim 12, wherein the metallic film is etched using an etching solution including NH_4OH , H_2O_2 , and H_2O , a composition ratio of which is 5 : 100 : 400.

17. The method of claim 12, wherein:

the thin film resistor having a specific shape is formed on a substrate;

the metallic film is formed on an entire surface of the substrate to cover the thin film resistor; and

the conductive film is formed on the metallic thin film disposed on the entire surface of the substrate.

18. The method of claim 12, wherein:
the thin film resistor is made of CrSi;
the metallic film is made of TiW; and
the conductive film is made of Al.

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19. A method of etching a metallic film, comprising
the steps of:

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forming a thin film resistor on a semiconductor
substrate through an insulation layer interposed therebetween;
forming a metallic film on the thin film resistor;
oxidizing a surface portion of the metallic film to
form a surface oxide layer on the metallic film;

forming a conductive film on the surface oxide layer;
patterning the conductive film to form an opening in
the conductive film, the opening exposing the surface oxide
layer therefrom; and

wet-etching the surface oxide layer and the metallic
film.

20. The method of claim 19, further comprising a
step of performing a heat treatment to cause a reaction between
the surface oxide layer and the conductive film after the step
of wet-etching the surface oxide layer and the metallic film.

21. The method of claim 20, further comprising a
step of forming an Al wiring member on the conductive film
through an intermediate insulation film interposed

therebetween,

wherein the step of performing the heat treatment is an Al sintering step for sintering the Al wiring member.

22. A method for wet-processing first and second metallic films laminated with each other, the method comprising the steps of:

preparing the first and second metallic films laminated with each other, the first and second metallic films respectively being made of first and second metallic materials different from each other;

forming an opening in the second metallic film to expose the first metallic film from the opening; and

wet-processing the first and second metallic films using a specific solution,

wherein, in the step of wet-processing the first and second metallic films, an insulation film is disposed at at least one of an interface between the first and second metallic films and a specific surface of the second metallic film, the specific surface of the second metallic film and the first metallic film exposed from the opening both contacting the specific solution to have an electrode potential difference therebetween.

23. The method of claim 22, wherein the step of wet-processing the first and second metallic films is a step of wet-etching the first metallic film through the opening of the

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second metallic film.

24. The method of claim 22, wherein the specific surface of the first metallic film is a side surface of the opening of the second metallic film.

25. The method of ~~claim 22~~, wherein the insulation film is an oxide film that is formed by oxidizing a surface portion of the first metallic film before the second metallic film is formed on the first metallic film.

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